Wisconsin Lakesider

Great Lakes Area of Concern Newsletter

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Aerial Muskrat Survey Good News for Green Bay Aquatic Mammals

Aquatic mammals, like muskrat, beaver, mink, and otter, are one of the groups of animals that there has been some concern about in the past for the AOC. Their numbers were believed to be negatively impacted from polychlorinated biphenyl (PCB) contamination and habitat limitations as Green Bay developed its riverfront. In 2014, Wisconsin DNR surveyed trappers to find out if they perceived that these animals were either not present or present in fewer numbers than in neighboring areas that aren't in the AOC.

The results of that survey indicated that perceptually, there didn't seem to be much difference between trappers' catches and observations between aquatic mammal abundance in the AOC compared to outside of it. One of the recommendations from that survey was to complete aerial surveys of muskrat houses to get a better idea of their numbers inside and outside the AOC.

In December of 2015, DNR was able to complete the aerial surveys and look for muskrat houses from a small, low flying plane. Wildlife supervisor John Huff counted the number of houses in areas with suitable habitat from the air, and then used GIS to calculate acreage (continued on page 4)

Muskrat in Oconto County marsh.

St. Louis River Wild Rice Project Completes First Year

You may know that wild rice is an important food for migratory waterfowl and has been an important nutritional grain for indigenous peoples who have resided here for centuries, and that it represents important traditions for the Anishinaabe people today.

What you may not know is that wild rice is our canary in the coal mine: the loss of natural wild rice beds tells a story of greater habitat loss for a wide variety of birds and reflects diminished water quality that affects fish and aquatic insects.

The Manoomin Restoration Partnership – St. Louis River Estuary just completed our first year in what is envisioned as a 10-year effort to re-establish more than 250 acres of wild rice beds in the Wisconsin and Minnesota waters of St. Louis River Estuary. The state line runs down the middle of the lower St. Louis River between Superior, WI and Duluth, MN.

Last summer, suitable sites were identified (59 acres in Wisconsin waters and 62 acres in Minnesota waters), vegetation was removed and wild rice seed was distributed. More than 8,000 lbs of wild rice was collected and seeded (continued on page 2)

Wild rice in the St. Louis River Estuary.

St. Louis River

Wisconsin DNR biologists perform plant surveys at Clough Island.

What's Happening?

To learn more about St. Louis River AOC projects and events visit http://dnr.wi.gov

search "St. Louis AOC"

For more information, contact:
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NOW AVAILABLE

The 2015 Remedial Action Plan (RAP)

Years of Aquatic Plant Data Summarized for St. Louis River

The plants in the St. Louis River Estuary rank right in the middle when it comes to quality according to Wisconsin Sea Grant Researcher Nick Danz. Danz, associate professor of plant science at University of Wisconsin Superior, combined his own field work with plant datasets from other researchers and natural resource agencies to compile a dataset with 323 species spanning 5,000 survey spots in the estuary.

For the project, called "Integrating Prior Vegetation Surveys to Test Spatial and Temporal Patterns of Wetland Floristic Quality in the St. Louis River Estuary," Danz applied numerical values known as the Coefficient of Conservatism (C) to different plant species based on whether they are usually found in disturbed environments or undisturbed environments. C values range from 0 to 10.

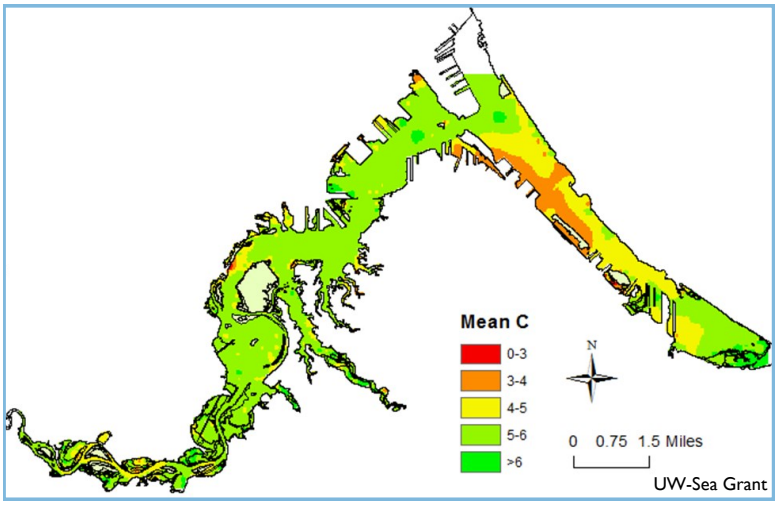
For instance, wild rice has a C value of 8 because it is found in relatively pristine areas. On the other hand, a narrow-leaved cattail has a C value of 0 because it is a nonnative invasive species found in the most developed places. In fact, this type of cattail was the most common low-value plant found in the estuary. The most common high-value plant was the floating bur reed with a C value of 9.

Overall, the average score of plant types at locations across the entire estuary was about a 5, which means that moderate quality wetland plants dominate the area.

"This information serves as a benchmark to judge future changes," said Danz. "We'd like to share data and collaborate to improve plant quality in the estuary to a 6 or a 7." The index is one tool that natural resource agencies can use to plan and measure progress at restoration sites. For example, scores based on plants found in less disturbed areas can be used to provide baseline condition and evaluate restoration success at nearby sites such as Hog Island inlet and Pickle Pond.

The project was funded through the Wisconsin Sea Grant Institute research program.

Danz is collaborating with Shon Schooler at the Lake Superior National Estuarine Research Reserve to put the data together for a big picture of plants in the estuary. In addition to developing baseline information, they hope to create a list of species for restoration and identify what drives plant quality. — Marie Zhuikov, UW Sea Grant Institute



Map of average plant Mean C scores interpolated across the entire St. Louis River Estuary. Scores nearer 0 indicate lower quality conditions based on observed plants.

Wild Rice (continued)

(continued from front) by Fond du Lac Natural Resources this year.

The seeding process will be repeated on these sites annually over a three to five year period, which gives the wild rice a better chance to become established and succeed.

Next year we'll continue that re-seeding process on our first year sites as well as identify, prepare and seed an additional 70 acres within the St. Louis River.

We'll also keep a close watch on the success of the seed beds. The 1854 Treaty Authority monitors survival and growth of the restoration sites. This information helps us adapt our treatments. We might need to increase seeding rate, or remove competing vegetation. Monitoring also allows us to share results so that others can learn from our efforts. - Daryl Peterson, Minnesota Land Trust

The Manoomin Restoration Partnership is managed by the Wisconsin DNR, the Great Lakes Indian Fish and Wildlife Commission, Fond du Lac Natural Resources, the 1854 Treaty Authority, The Minnesota Land Trust, Minnesota DNR and the Minnesota Pollution Control Agency. The project is funded in part by the National Fish and Wildlife Foundation's Save Our Great Lakes Program.

Lower Menominee River

South Channel Habitat Restoration Coming Soon

Just upstream of Menekaunee Harbor, another habitat restoration project is gearing up to begin this spring. Like the Menekaunee Harbor project, the South Channel project is being implemented by the City of Marinette and WDNR with funding from a USEPA Great Lakes Restoration Initiative (GLRI) grant. The City has hired Robert E. Lee & Associates, Inc. to oversee the project, and plans to hire contractors to implement it this spring. The work will include narrowing the channel to increase water velocity and create habitat; removing rock under Ogden Street Bridge to improve flows and fish passage; planting native seeds, plants, trees, and shrubs; and installing various habitat structures, including bird nesting boxes, bat houses, and in-water wood structures for fish.

Habitat restoration in the South Channel is expected to be completed in 2016, with follow-up invasive plant monitoring and control through 2019 to ensure project and AOC goals are met. Species expected to benefit from habitat creation and improvement include the following: northern pike, largemouth bass, smallmouth bass, walleye, yellow perch, muskellunge, eastern bluebird, great blue heron, wood duck, and osprey. Water quality and flow and connectivity between the South Channel and Menekaunee Harbor will be improved. Besides the environmental benefits, these restoration projects are revitalizing the area by cleaning them up and providing economic and recreational opportunities. Stay tuned for updates! - Laurel Last

Dredging of the South Channel by Sevenson Environmental Services, Inc in 2014

What's Happening?

To learn more about the Lower Menominee River AOC projects and events visit http://dnr.wi.gov

search "Menominee River AOC"

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Menekaunee Harbor Habitat Restoration Update

Habitat restoration work at Menekaunee Harbor is almost complete! Since August of 2015, the City of Marinette's contractor, Applied Ecological Services, Inc. (AES), has been busy planting native vegetation, controlling invasive plants, and installing various habitat structures, including rock piles, brush piles, bird nesting boxes, bat houses, and in-water wood structures for fish.

In November, members of the Menominee Tribe of Wisconsin and students from the Menominee Tribal School, Indian Community School of Milwaukee and the Menominee Indian High School performed a wild rice planting ceremony to celebrate the reseeding of wild rice in the harbor. Wild rice, which was historically present here, has great significance for the Menominee Nation, whose members trace their origins to the mouth of the Menominee River. The name "Menominee" is a version of "Omaeqnomenew," which translates to "People of the wild rice."

The Menekaunee Harbor habitat restoration is expected to be completed in spring of 2016. All that remains is the installation of floating tern nesting platforms and some plants that were not available last year. AES will perform follow-up invasive plant monitoring and control through 2018 to ensure project and AOC goals are met. Plans are in progress for UW-Marinette students to take part in long-term monitoring and maintenance of the site. We are looking for additional partners willing to help maintain this habitat and protect it for future generations. Please contact AOC Coordinator Laurel Last at laurel.last@wisconsin.gov or (920) 662-5103 if you or your group would like to help out.

We invite you to come to Menekaunee Harbor to explore the new habitat! Check out this new video for an overview of the project and its benefits to the local community: https://youtube/d3nLkri-SI8
- Laurel Last

Menominee Indian High School students plant wild rice (left); "Fish sticks" provide habitat for fish (top); Native planting replace invasives (below)

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Click below to watch new videos!

Menekaunee: Bringing the Harbor to Life

Sturgeon Passage (Part 1): Up River Refuge

Sturgeon Passage (Part 2): Getting a Lift

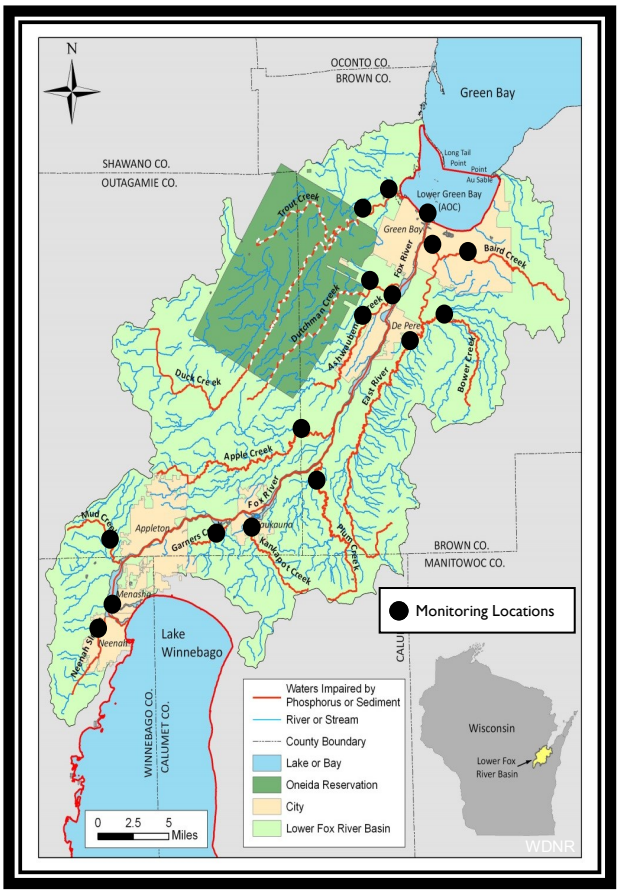
Lower Green Bay & Fox River

Volunteers Collect Important Water Quality Data

In 2015 the Wisconsin DNR developed a valuable partnership with Fox Valley Technical College and University of Wisconsin – Extension's Water Action Volunteers Stream Monitoring Program. The partnership established the Lower Fox River Tributary Volunteer Monitoring program. This program is funded through the state using Great Lakes Restoration Initiative (GLRI) funds and collects water quality data on 14 tributaries in the Lower Fox River Basin. Volunteer collected data will help generate a baseline dataset that can be used to track changes in water quality over time with the implementation of conservation practices associated with the Lower Fox River and Green Bay TMDL.

The Lower Fox River and Lower Green Bay are impaired by excessive amounts of phosphorus and sediments. A major portion of the load originates from water that runs off farm fields and hard surfaces such as roads, parking lots, and roof tops. The runoff carries soil particles and nutrients into the rivers and streams. This phosphorus and sediment loading can lead to nuisance algae growth, reduced submerged vegetation, oxygen depletion, water clarity problems and the loss of valuable aquatic habitat.

Beginning in spring of 2015, the Lower Fox River Tributary Volunteer Monitoring Program recruited more than a dozen volunteers to perform surface water quality monitoring within the Lower Fox River Basin. Volunteers were trained to conduct DNR monitoring protocols. They collected water quality samples on the 14 rivers and streams once per month from May through October. Samples were analyzed by the Wisconsin State Laboratory of Hygiene for Total Phosphorus, Dissolved Reactive Phosphorus and Total Suspended Solids. In addition, volunteers measured the stream flow and water clarity of each stream on each sample date. Volunteers were also trained to collect and preserve aquatic insects and other organism samples from each tributary. These samples were then analyzed by University of Wisconsin-Superior to determine the biological health of the streams at each site.



Monitoring Locations for 2015. Volunteers collected water quality samples and measured stream flow and water clarity from May to October.

What's Happening?

To learn more about Lower Green Bay & Fox River AOC projects and events visit http://dnr.wi.gov

search "Green Bay AOC"

For more information, contact:
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The 2015 Remedial Action Plan (RAP) Update

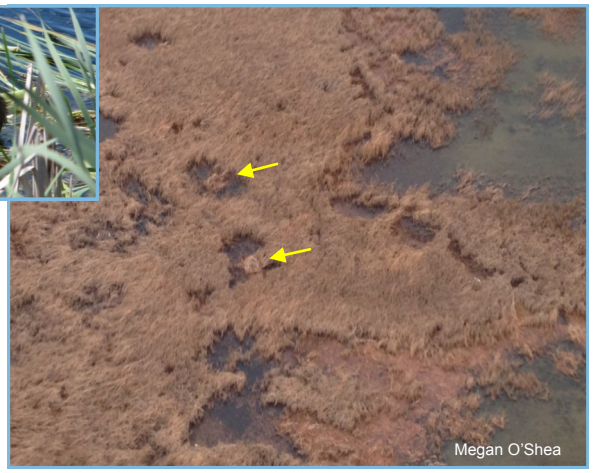
The Lower Fox River Tributary Volunteer Monitoring program's first year was a success! Important water quality data was collected, valuable partnerships were established and stronger relationships between volunteers and agency staff were formed. Lessons learned from the first year will help build a stronger program moving forward into the 2016 monitoring season. –Eric Evenson, Water Resource Management Specialist, WDNR

Muskrats (continued)

(continued from front) of those areas. We could then use this to develop approximations of muskrat density for within the AOC and outside of it. In the AOC, densities of muskrats per 100 acres of suitable habitat were 6-7 muskrats and 5-6 muskrats/100 acres of habitat outside the AOC. Sixty-two muskrat houses were counted in the AOC boundaries. This indicates the numbers of muskrats within the AOC are fairly good. To show you some idea of what we were looking for, the photo shows how the landscape looked from the plane, and the tiny houses among the vegetation!

We hope to have more to report about wildlife and fish in the AOC in the coming months as a habitat assessment continues for the AOC. Stay tuned!
- Megan O'Shea


John Huff


Megan O'Shea

Muskrat numbers were estimated by counting houses from above.

Sheboygan River

What's Happening?

To learn more about Sheboygan River AOC projects and events visit http://dnr.wi.gov

search "Sheboygan River AOC"

For more information, contact:
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The 2015 Remedial Action Plan (RAP) Update

BUI Removal Documents Available Online

Final BUI removal packages including removal letters form Wisconsin DNR and US EPA are now available on the DNR website for BUIs removed in 2015:

Eutrophication or Undesirable Algae - BUI removed November 2015

Restriction on Dredging Activities - BUI removed July 2015

Kiwanis Park before (left) and after (right) restoration of the shoreline and adjacent areas which increased habitat for fish and wildlife.

Maintenance and Monitoring Ensure Successful Habitat Restoration Projects in Sheboygan River

More than 5 years ago, The Sheboygan River AOC Fish and Wildlife Technical Advisory Committee developed a list of projects to address two of the fish and wildlife related Beneficial Use Impairments (BUIs). Several habitat restoration projects were identified and the Wisconsin DNR received a Great Lakes Restoration Initiative (GLRI) grant to implement them, partnering with the City of Sheboygan and Sheboygan County. To ensure the success of these projects, and a return on the significant financial investment to complete them, the work plan included several years of maintenance and monitoring which will be wrapping up this year.

After substantial completion of all habitat restoration projects in the Sheboygan River AOC in 2012, Wisconsin DNR is continuing to work with the City and County of Sheboygan and the habitat contractors to monitor and maintain all habitat sites to ensure establishment of vegetation and planned habitat features. Maintenance includes replacing dead or missing trees and shrubs and taking corrective actions for invasive species management. Below are the projects and a short description of the restoration at each area:

Kiwanis Park had shoreline and areas adjacent to the river restored to increase habitat amounts and diversity for fish and wildlife. Since this is a well-used public park, a landscape fence was added to the project to reduce foot traffic in the designated habitat areas. This preserved native plantings, eliminated the need for lawn mowing, and kept the shoreline buffer as natural as possible. Existing storm water outfalls were also retrofitted to reduce erosive flows.

The Taylor Drive & Indiana Avenue Riparian Area created connectivity between the Sheboygan River and nearby wetlands. Fish and wildlife habitat was improved within the wetlands, within the river, and in the areas adjacent to the river. This habitat benefits a variety of species like turtles, frogs, mink, breeding birds, as well as the food sources these species depend upon.

The Taylor Drive Wetland replaced a larger pond with restored deep and shallow marsh habitats to increase habitat for native wildlife and increase storm mitigation functions. A hibernaculum was constructed to allow for increased reptile and amphibian habitat and connectivity to other habitat areas was increased as well.

Wildwood Island before (right) and after (above) restoration.

The Wildwood Islands Area stabilized banks on and adjacent to the island to protect fish and wildlife habitats. Invasive species were also removed from the island to improve wildlife habitat. Aquatic plants and tree structures were established in the river to improve fish habitat. Habitat for birds was also improved and nesting platforms were added to the island.

Shoreline Stabilization in problem areas reduced river bank and soil erosion in problem areas throughout the AOC. These areas were stabilized in a manner that created suitable habitat for wildlife. (continued on page 7)

Milwaukee Estuary

What's Happening?

To learn more about Milwaukee Estuary AOC projects and events visit http://dnr.wi.gov

search "Milwaukee AOC"

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The 2015 Remedial Action Plan (RAP) Update

Little Menomonee River Grassland Restoration Provides Critical Habitat and Erosion Control

The remains of a mowed buckthorn patch can be seen in a now open habitat area.

Through a cooperative partnership with the Wisconsin DNR, the Milwaukee County Department of Parks, Recreation and Culture (DPRC) restored an approximately 35-acre grassland along the Little Menomonee River within the Milwaukee Estuary AOC. Beginning in March 2014, the Milwaukee County DPRC's Forestry staff began the initial removal of large stands of non-native invasive species, such as common buckthorn and honeysuckle, from the project area using a forestry (fecon) mower and chainsaws. These removals were followed by herbicide applications to prepare the project area for native prairie seed installation in the fall of 2014.

In addition to the forestry mowing activities, DPRC staff also conducted targeted control on other non-native invasive species within the project area such as cut-leaf teasel and Japanese knotweed. By converting the degraded areas into grassland through this restoration project, erosion issues will be dramatically reduced and absorption of run-off will increase, thereby decreasing the amount of potentially harmful pollutants entering the Little Menomonee River.

The removal of invasive species will also provide critical, improved habitat conditions for breeding and migratory wildlife within a regionally designated environmental corridor (SE WI Regional Planning Commission). This grassland restoration is the largest potential upland grassland restoration site in the Milwaukee County portion of the Little Menomonee River section of the AOC.

This restoration project is a (continued on page 7)

Milwaukee Estuary AOC Community Advisory Committee Formed

Last August, prospective members of the newly formed Milwaukee Estuary AOC Community Advisory Committee (CAC) came together at the founding meeting, marking the beginning of a very important forum for resident and local stakeholder input. The CAC serves as the long-term community voice for cleaning up and delisting the Milwaukee Estuary AOC. The group provides a structured way for individual citizens to share their opinions and perspectives on cleanup efforts, and on how policies and programs affect citizens who live and work in the watersheds.

When the original Remedial Action Plan (RAP) for the AOC was developed in 1991, it was the result of significant public consultation and involvement and included multiple technical advisory committees and a citizen advisory committee. As funding and progress in the AOC waned during the late 90's and early 2000's, these groups also faded. In 2012, Wisconsin DNR established a Fish and Wildlife technical team for input on habitat and population related projects. At the same time UW-Extension formed a "Stakeholder Delegation," a subset of the larger groups of interested stakeholders to advise and support an education and outreach strategy through direct involvement, consultation, and review of outputs. The Delegation had unofficially served as the CAC when it came to endorsing on-the-ground projects that are seeking federal agency funding. However, as progress in the Milwaukee Estuary AOC continues thanks to funding form the Great Lakes Restoration Initiative (GLRI), it is critical to community engagement to have a fully-functioning, official CAC. In fall of 2014, DNR and UWEX began to work with stakeholders to form such a group.

In 2015, Wisconsin DNR provided GLRI federal funds to accelerate the formation of the CAC. This included hiring a professional facilitator to ensure an organized and effective CAC development process, as well as partnering with Southeastern Wisconsin Watershed Trust (SWWT) to assist in designing and maintaining a CAC website, develop a membership list and conduct informational mailings, and provide administrative and organization support for the group. The newly revived Milwaukee Estuary AOC Community Advisory Committee held its first official meeting on August 17, 2015 and continues to meet on a quarterly basis.

The CAC is a broad-based, balanced, and diverse group representing public, private, and nonprofit sectors of the local community, with members from agriculture, construction, business, education, government, industry, environment, law, civic groups, and recreation interests. Membership is voluntary and open to anyone who wishes to participate. A CAC Leadership Team, comprising members from non-governmental organizations, units of government, and private citizens, organizes and guides the efforts of the CAC.

MKE CAC
Milwaukee Estuary Area of Concern
Community Advisory Committee

Ultimately, the goal of Milwaukee Estuary AOC CAC is to support the work of the Wisconsin DNR and its partners as we address beneficial use impairments that have been identified in the Milwaukee Estuary, to provide information and resources about the Milwaukee Estuary AOC to the community, and to serve as a vehicle for community expression regarding their concerns about AOC issues. For more information, visit the temporary website link for the CAC at http://mke-aoc.squarespace.com/.

— Emily Punke, with input from John Hacker, CAC member

Sheboygan Restoration (continued)

(continued from page 5)

In-Stream Habitat Improvements were implemented to create or increase habitat for fish throughout the river. These improvements included adding boulders for fish cover and resting.

The Targeted Invasive Species Control project identified sites with invasive species growth and overall, invasive species were eradicated at 60 sites throughout the AOC.

A Schuchardt Property Conservation Plan was developed to identify and promote the protection of important resources, including a class II trout stream, high quality wetland areas, and other natural features, on the 178 acre Schuchardt Property along the AOC.

These projects have greatly helped to address habitat related impairments along the Sheboygan River and four years of monitoring and maintenance helps ensure that the habitat improvements will endure into the future. Working with partners at UW-Extension and Camp Y-Koda, the local community was engaged in citizen monitoring to increase local knowledge of the projects. It is our hope that the community and local interest groups will become the long-term stewards of the projects. There will also be future opportunities to build upon the success of these projects through other habitat restoration programs and funding.

Additional monitoring will also be performed this summer to document success of habitat restoration projects through improvements in aquatic and terrestrial populations. The following species will be surveyed in 2016: fish, benthic macroinvertebrates, mink, herptiles, birds, bats, and mussels. These surveys will serve as further evidence that the habitat restoration projects are functioning as intended through improvements in species populations or available habitat. — Camille Bruhn

Monitoring this summer will include mussels, herptiles and bats.

Grassland Restoration (continued)

(continued from page 6)

component of a larger 169-acre Milwaukee County DPRC restoration and management plan for this section of the Little Menomonee River. The restoration and management plan is a ten-year project that encompasses all short and long term goals/activities such as invasive species control, wildlife habitat management, hiking trail maintenance, natural resource inventories, and public use activities. Additional invasive species control on the entire 35 acres will be required by the Parks Department which is committed to the long-term maintenance of this project site. The project area was also incorporated into the Milwaukee County DPRC AOC Baseline Wildlife Population Assessment project in order to collect baseline data on wildlife populations potentially using the habitat available within the project area. The DPRC will continue to monitor wildlife populations within the project area in order to assess the impacts of the grassland restoration on wildlife populations. - Julia Robson, Assistant Natural Areas Coordinator, Milwaukee County Department of Parks, Recreation & Culture

BEFORE & AFTER – The before image was taken in May 2010. A thick, dark-green buckthorn population can be seen (left). In April 2014, the footprint remaining from the mowed common buckthorn is visible as a light orange colored area (right).

WISCONSIN DEPT. OF NATURAL RESOURCES

Wisconsin DNR Office of the Great Lakes

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